

1 **WHAT IS CLAIMED IS:**

2 1. A headphone with an automatic reeling device for a jack wire, the
3 headphone comprising:

4 a headband (10) with two ends;

5 two earphones (20) respectively attached to the two ends of the
6 headband (10);

7 a reeling device installed inside one of the two earphones (20); and
8 a jack wire (40) wound around the reeling device;

9 wherein the improvements of the headphone comprise:

10 the earphone (20) accommodating the reeling device and being a
11 hollow cylinder with an inner end, an outer end, an inner cover (26), a
12 middle plate (21) formed in the hollow cylinder, an outer cover (39), an
13 audio output device attached to the inner cover (26) and a wire slot (221)
14 defined in the hollow cylinder;

15 the inner cover (26) attached to the inner end of the earphone (20);

16 the middle plate (21) having a central post (23) with a distal end, a
17 positioning slot (231) defined axially in the distal end, a spring recess
18 defined in the distal end and communicating with the positioning slot (231),
19 a spring (375) mounted in and protruding from the spring recess, multiple
20 wire holes (211) defined through the middle plate (21);

21 the reeling device mounted on the middle plate (21) and having:

22 a stationary disk (25) mounted on the middle plate (21) and
23 electrically connected to the audio output device;

24 a rotating disk (30) with a wire reel (31) rotatably mounted on

1 the stationary disk (25), wherein the jack wire (40) is wound around
2 the wire reel (31);
3 a coil spring (38) mounted between the stationary disk (25)
4 and the rotating disk (30) to provide a restitution force to the rotating
5 disk (30); and
6 a push button (37) movably mounted on the central post (23)
7 and pushed by the spring (375) on the central post (23), wherein the
8 push button (37) move along the central post (23) axially and is kept
9 from rotation relative to the central post (23); and
10 the outer cover (39) mounted on the outer end of earphone (20) to
11 hold the reeling device inside the earphone (20).

12 2. The headphone with an automatic reeling device as claimed in
13 claim 1, wherein the stationary disk (25) comprising
14 an outer surface;
15 an inner surface;
16 a through hole (241) through which the central post (23) extends;
17 multiple circular contacts (251, 252, 253) being a left track contact
18 (251), two ground contacts (252) and a right track contact (253) sequentially
19 arranged on the outer surface of the stationary disk (25) inside out; and
20 multiple conductive wires (261, 262, 263) being a left track wire
21 (261), two ground wires (262) and a right track wire (263) respectively
22 connected to the left track contact (251), the two ground contacts (252) and
23 the right track contact (253), the multiple conductive wires (261, 262, 263)
24 extending through the stationary disk (25) and the middle plate (21) to

1 connect to the audio output device on the inner cover (26).

2 3. The headphone with an automatic reeling device as claimed in

3 claim 1, wherein the rotating disk (30) is rotatably mounted on the central

4 post (23), abuts the stationary disk (25) and comprises

5 a through hole defined in the rotating disk (30);

6 an outer surface;

7 an inner surface facing the stationary disk (25);

8 the wire reel (31) being a hollow cylinder, formed concentrically on

9 the outer surface and comprising

10 an inner segment;

11 an outer segment with an inner periphery;

12 a dividing plate (34) having a through hole formed

13 concentrically with the through hole in the rotating disk (30), wherein

14 the dividing plate (34) extends inward from the hollow cylinder to

15 define the inner segment and the outer segment inside the hollow

16 cylinder, wherein the inner segment accommodates the coil spring

17 (38);

18 two stop blocks (36) formed on the inner periphery of the

19 outer segment to detachably engage with the push button (37); and

20 two longitudinal slots (32) defined in the outer segment to

21 define an attaching post (33) to which the jack wire (40) is connected.

22 4. The headphone with an automatic reeling device as claimed in

23 claim 3, wherein the inner segment has a spring slot (311).

24 5. The headphone with an automatic reeling device as claimed in

1 claim 3, wherein the rotating disk (30) has multiple grooves (301) defined in
2 the outer surface of the rotating disk (30) and extending out from the wire
3 reel (31);

4 each groove (301) has a distal end and a lead hole (302) defined
5 through the rotating disk (30) at the distal end;

6 wherein the jack wire (40) is composed of multiple wires and the
7 wires extend respectively into the multiple grooves (301).

8 6. The headphone with an automatic reeling device as claimed in
9 claim 4, wherein the rotating disk (30) has multiple grooves (301) defined in
10 the outer surface of the rotating disk (30) and extending out from the wire
11 reel (31);

12 each groove (301) has a distal end and a lead hole (302) defined
13 through the rotating disk (30) at the distal end; and

14 wherein the jack wire (40) is composed of multiple wires and the
15 wires extend respectively into the multiple grooves (301).

16 7. The headphone with an automatic reeling device as claimed in
17 claim 3, wherein the push button (37) has

18 an outer surface;

19 a distal end;

20 a proximal end;

21 a flange formed on and extending out radially from the distal end;

22 an axial stub (371) with an outer periphery; and

23 two radial stops (372) formed on and extend out radially from the
24 flange and detachably engage the stop block (36) on the dividing plate (34);

1 wherein each radial stop (372) has an inclined face (373) and a
2 vertical face (374).

3 8. The headphone with an automatic reeling device as claimed in
4 claim 5, wherein the push button (37) has

5 an outer surface;

6 a distal end;

7 a proximal end;

8 a flange formed on and extending out radially from the distal end;

9 a stub (371) with an outer periphery; and

10 two radial stops (372) formed on and extend out radially from the
11 flange and detachably engage the stop block (36) on the dividing plate (34);

12 wherein each radial stop (372) has an inclined face (373) and a
13 vertical face (374).

14 9. The headphone with an automatic reeling device as claimed in
15 claim 8, wherein two opposite flat portions are formed at the distal end of the
16 central post (23); and

17 a post recess defined in the proximal end of the push button (37) to
18 match with the distal end of the central post (23) to allow the push button (37)
19 moving axially along the central post (23);

20 wherein, the opposite flat portions of the central post (23) prevent the
21 push button (37) from rotating with the rotating disk (30).